

What is claimed is:

1. A staple forming anvil having a length and an upper surface defining rows of staple forming pockets parallel to said length
5 comprising:
first and second substantially identical leg-forming cups defining longitudinally spaced apart descending leg-receiving portions and adjacent ascending leg-clinching portions, each cup comprising:
10 a concave arcuate clinching surface extending between said leg-receiving portion and said leg clinching portion and defining an axis substantially perpendicular to the length of said anvil; and
laterally spaced apart guide surfaces extending
15 upwardly and outwardly from said clinching surface, a laterally outward-most portion of said guide surfaces being substantially planar,
wherein the outward-most portions of laterally adjacent guide surfaces intersect and the leg-receiving portions of at least one row of
20 pockets have a first lateral width that is greater than a second lateral width of the leg-clinching portions of said at least one row of pockets.
2. The staple forming anvil of claim 1, wherein the laterally outward-most portion of said guide surfaces have a substantially equal angular
25 orientation relative to a plane perpendicular to and bisecting said clinching surfaces.
3. The staple forming anvil of claim 1, wherein the laterally outward-most portion of said guide surfaces define an obtuse included angle.
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4. The staple forming anvil of claim 3, wherein said obtuse included angle is in the range of 120° to 160°.

5. The staple forming anvil of claim 3, wherein said obtuse included angle is approximately 140°.

5 6. The staple forming anvil of claim 1, wherein said clinching surface is flat in cross section between said guide surfaces.

7. The staple forming anvil of claim 1, wherein said first lateral width is at least 25% greater than said second lateral width.

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8. The staple forming anvil of claim 1, wherein said first lateral width is approximately twice said second lateral width.

9. The staple forming anvil of claim 1, wherein said rows of staple
15 forming pockets are staggered such that the adjacent leg-clinching portions of a pocket in one row are aligned with the leg-receiving portions of staple forming pockets in a laterally adjacent row.

10. The staple forming anvil of claim 1, wherein said rows of staple
20 forming pockets are staggered such that the adjacent leg-clinching portions of a pocket in one row are aligned with the leg-receiving portions of staple forming pockets in a laterally adjacent row and laterally adjacent guide surfaces meet to define a ridge, a major portion of said ridge having an angular orientation to the length of said anvil.

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11. The staple forming anvil of claim 1, wherein said rows of staple
forming pockets are staggered such that the adjacent leg-clinching
portions of a pocket in one row are aligned with the leg-receiving
portions of staple forming pockets in a laterally adjacent row and laterally
30 adjacent guide surfaces meet to define a non-linear ridge.

12. In a staple forming anvil of a surgical stapler, the anvil having an upper surface defining a plurality of staple forming pockets in parallel rows, each said pocket comprising:

5 first and second leg forming cups each including a descending leg-receiving portion and an ascending leg-clinching portion, said leg-clinching portions being adjacent and said leg-receiving portions being spaced apart, each cup comprising:

10 a concave arcuate clinching surface extending between said leg-receiving portion and said leg clinching portion and defining an axis substantially perpendicular to the length of said anvil; and

laterally spaced apart guide surfaces extending upwardly and outwardly from said clinching surface, a laterally outward-most portion of said guide surfaces being substantially planar,

15 wherein pockets in the parallel rows are staggered so that a leg-receiving portion of a pocket in one row is aligned with a leg-clinching portion of a pocket in an adjacent row, the guide surfaces of adjacent rows meeting to define a ridge separating the cups of one row from the cups of an adjacent row, **the improvement comprising:**

20 the leg-receiving portions of at least one row of pockets having a lateral width that is at least 25% greater than a lateral width of the leg-clinching portions of pockets in the same row, the increased lateral width of said leg-receiving portions being taken from the leg-clinching portions of cups in an adjacent row.

30 13. The staple forming anvil of claim 12, wherein said anvil defines a set of three parallel rows of pockets, said at least one row of pockets being a central row of pockets.

14. The staple forming anvil of claim 12, wherein the laterally outward-most portion of said guide surfaces have a substantially equal

angular orientation relative to a plane perpendicular to and bisecting said clinching surfaces.

15. The staple forming anvil of claim 12, wherein the laterally
5 outward-most portion of said guide surfaces define an obtuse included angle.

16. The staple forming anvil of claim 15, wherein said obtuse included angle is in the range of 120° to 160°.

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17. The staple forming anvil of claim 15, wherein said obtuse included angle is approximately 140°.

18. The staple forming anvil of claim 12, wherein said clinching
15 surface is flat in cross section.

19. The staple forming anvil of claim 12, wherein the lateral width of said leg-receiving portions is approximately twice the lateral width of said leg-clinching portions.

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20. A staple forming anvil comprising:

a plurality of staple forming pockets arranged in laterally adjacent parallel rows, each said pocket including a pair of longitudinally aligned staple leg-forming cups, each said cup defined by an arcuate clinching
25 surface extending between a descending leg-receiving cup portion and an ascending leg-clinching cup portion and a laterally spaced apart pair of partially planar guide surfaces extending upwardly and outwardly from said clinching surface, said cups arranged with said ascending leg-clinching cup portions abutting each other in a center of each said
30 pocket,

wherein said rows of staple forming pockets are staggered such that the leg-clinching cup portions of a pocket in one row are laterally

adjacent to the leg-receiving cup portions of staple forming pockets in an adjacent row and laterally adjacent guide surfaces meet to define a ridge, a major portion of said ridge having an angular orientation to the length of said anvil.

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21. The staple forming anvil of claim 20, wherein a major portion of said ridge has an angular orientation relative to the longitudinally aligned staple leg-forming cups.

10 22. The staple forming anvil of claim 20, wherein said arcuate clinching surface is substantially flat in section.

23. The staple forming anvil of claim 20, wherein said arcuate clinching surface is flat in section over a portion of its length and arcuate
15 in section over a portion of its length.

24. The staple forming anvil of claim 20, wherein the leg-receiving cup portions of at least one row of pockets have a first width measured perpendicular to said longitudinal direction that is at least 25% greater
20 than a second width of said leg-clinching portions.

25. The staple forming anvil of claim 24, wherein said first width is approximately twice said second width.

25 26. The staple forming anvil of claim 20, wherein said ridge is non-linear.

27. The staple forming anvil of claim 20, wherein said guide surfaces include a laterally outward portion that is substantially planar.

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28. The staple forming anvil of claim 21, wherein said guide surfaces include a laterally outward portion that is substantially planar.

29. The staple forming anvil of claim 27, wherein the laterally outward portions of said guide surfaces define an obtuse included angle.
- 5 30. The staple forming anvil of claim 20, wherein the leg-receiving cup portion of a pocket in one row has a laterally expanded width that is greater than the leg-clinching cup portion of a pocket in an adjacent row.